

PROPERTY PLANNING COMMON ELEMENTS

COMPONENTS OF MASTER PLANS

HABITATS AND THEIR MANAGEMENT

Ephemeral Pond

Description

Ephemeral ponds (sometimes called vernal pools) are depressions with impeded drainage that hold water for a period of time following snowmelt and spring rains but typically dry out at some point during summer or early fall. In northeastern North America, ephemeral ponds are shallow and often small, rarely exceeding 10 acres in size. Most occur in glaciated terrain, usually in forested landscapes. Ephemeral ponds are isolated from permanent water sources and do not support predatory fish, which allows certain invertebrates as well as many amphibians, including wood frogs and several species of salamander, to complete key segments of their lifecycles when their eggs or young are most vulnerable. This makes ephemeral ponds highly productive in the spring and early summer when they provide critical breeding habitat for these species. The annual pattern of alternating periods of wetting and drying is a key attribute for the specialized species that depend on this habitat. Ephemeral ponds also provide feeding and resting habitat for a variety of birds and mammals. Trees adjacent to ephemeral ponds provide a variety of benefits, such as maintaining cool water temperatures, preventing premature drying, adding to the detritus-based food web, and providing coarse woody debris that serves as important growing, basking, and perching substrate for plants, amphibians, insects, and birds.

Common wetland plants found in and around ephemeral ponds include yellow water crowfoot, marsh mermaid-weed, Canada bluejoint grass, floating manna grass, spotted cowbane, smartweeds, orange jewelweed, and a variety of sedges. Characteristic and important tall shrubs associated with ephemeral ponds in northern Wisconsin are speckled alder, common winterberry, red-osier dogwood, white meadowsweet, currants, and American cranberry-bush. Trees commonly found around seasonally inundated ephemeral ponds are black ash, yellow birch, red maple, silver maple, American elm, and northern white-cedar. Eastern hemlock is now greatly reduced from its former abundance but is still an important associate in some northern Wisconsin sites.

Ephemeral ponds are threatened by hydrologic disruption, construction of roads and rights-of-way, loss of forest cover, and grazing. Ephemeral ponds are not well inventoried and mapped in many parts of the state and would benefit from additional field surveys to better quantify and document their distribution and abundance.

Ecological Landscape Opportunities

Ecological Landscape	Opportunity*
North Central Forest	M
Southwest Glacial Plains	M
Central Lake Michigan Coastal	I
Forest Transition	I
Northern Highland	I
Northern Lake Michigan Coastal	I
Southern Lake Michigan Coastal	I
Central Sand Hills	P



Ecological Landscape	Opportunity*
Central Sand Plains	P
Northeast Sands	P
Northwest Lowlands	P
Northwest Sands	P
Southwest Savanna	P
Superior Coastal Plain	P
Western Coulee and Ridges	P
Western Prairie	P

M = Major; major opportunity exists in this Landscape; many significant occurrences are recorded, or restorations likely to be successful.

I = Important; several occurrences important to maintaining the community in the state occur in this Landscape.

P = Present; community is present in the Landscape but better opportunity exists elsewhere.

Rare Species

Many Species of Greatest Conservation Need (SGCN) are associated with ephemeral ponds based on the findings in [Wisconsin's 2015 Wildlife Action Plan](#). To learn more, visit the [Wetland communities page](#) and click on "Ephemeral Pond" under "Explore non-forested wetlands".

Threats

- Forests in central and southern Wisconsin are less extensive and often highly fragmented and disturbed by conversion to other land uses, resulting in destruction and degradation of many ephemeral ponds.
- Altered hydrology is a primary threat to ephemeral ponds. Activities such as road and other right-of-way construction, development, agriculture, removal of forest cover, and grazing can disrupt water flow to ephemeral ponds and degrade or destroy water quality, soils, and vegetation cover.
- Siting of roads, rights-of-way, and other infrastructure adjacent to or near ephemeral ponds can isolate them from habitats that dependent species (e.g., amphibians) require for other life stages.
- Forestry practices that result in soil compaction, rutting, and erosion can degrade habitat quality of ephemeral ponds. The felling of trees or piling of slash into ephemeral ponds, or the routing of skid trails through ephemeral ponds can destroy them outright.
- Non-native invasive plants are a threat to ephemeral ponds.

Management Techniques

- Passive management
- Pesticide treatments

Management Considerations

- Protect site hydrology of ephemeral ponds; restore where feasible.



- Maintain or reestablish ecological connectivity between ponds within unroaded forests whenever possible.
- Attempt to map ephemeral ponds prior to timber sale establishment.
- Incorporate buffer zones around ephemeral ponds during forest management operations. Retain shade around ephemeral ponds. Do not fell trees, pile slash, or skid in or through ephemeral ponds.
- Encourage and maintain long-lived tree species around ephemeral ponds. Retain large trees, snags and coarse woody debris within the buffer zone.
- Consider leaving connecting strips between riparian zones and ephemeral ponds for amphibian travel corridors.
- Control invasive species in and around ephemeral ponds. Aquatic-approved pesticide use is permitted, but should be timed to minimize impacts on animal species that use ephemeral ponds, especially amphibians.

